Remarks/Arguments

This communication is considered fully responsive to the first Office action mailed October 2, 2003. Claims 1-74 were examined and stand rejected. No claims were amended. Claim 51 has been deemed allowable if written in independent form to include all of the limitations of the base claim and any intervening claims. No claims were canceled. No claims were added. Reexamination and reconsideration of claims 1-74 are respectfully requested.

Claim Rejections – 35 U.S.C. § 102

The Examiner rejects claims 1-4, 6-13, 15-20, 43-47, 53-64, 66, 68-69, and 71-74 stand rejected under 35 U.S.C. 102(e) as being purportedly anticipated by U.S. Patent No. 6,115,050 to Landau et al. ("Landau"). The Applicant respectfully traverses this rejection.

The Examiner improperly construes the silhouette edges in Landeau as representing Applicant's claimed "anti-aliased lines". The Examiner states that Landau discloses silhouette edges that are rendered to perform antialiasing. This assertion is incorrect. Landau does not disclose rendering the silhouette edges to perform antialiasing. Instead, Landau explains that the silhouette edges are being antialiased. Col. 2, lines 63-65.

Furthermore, Landau discloses that the silhouette edges are being antialiased by creating anti-aliasing polygonal primitives, which are along-side or adjacent to a silhouette edge and vary in opacity. See e.g., Col. 10, line 64 to Col. 11, line 6. The colors of pixels within these adjacent primitives are changed. Such anti-aliasing primitives are shown as triangles 150 in FIG. 14 and as strips 104 and

fans 106 in FIG. 9 and clearly do not anticipate the "antialiased lines" that are used to overdraw edges in Applicant's claim 1.

The Examiner also misinterprets FIG. 2 as illustrating "the processing of a line segment for reducing aliasing effect in an object image". However, FIG. 2 "illustrates aliasing effects on a line displayed at low resolution." Landau, Brief Description of the Drawings. Landau refers to FIG. 2 in the Background of the Invention as an example of the undesirable effect of aliasing. FIG. 2 does not show or suggest any processing that reduces the effect of aliasing, much less to do so by "overdrawing the discontinuity edges as antialiased lines," as positively recited in Applicant's claim 1.

Landau also fails to disclose or suggest "overdrawing" discontinuity edges as anti-aliased lines, as positively recited in Applicant's claim 1. The Examiner makes a bare assertion that the "edges *must be* drawn many times by the primitive pipeline to determine silhouette edges that are anti-aliased." However, this assertion is not supported by the description in Landau. Instead, Landau describes using "the information about the number of times particular edges were drawn to determine which edges . . . lie at the silhouette edge of an object." Col. 2, lines 58-61. These edges are then anti-aliased in Landau. Col. 2, lines 63-65. Furthermore, it is again noted that the edges Landau is referring to are those of the object being antialiased, and not the antialiased lines recited in Applicant's claim 1.

As explained in Applicant's response to the first office action, Landau only discloses joining polygonal primitives to a silhouette edge to anti-alias the silhouette edge. For example, triangles 150 are joined to one edge of the triangle 108 in FIG. 14. Having defined these triangles 150, Landau discloses only calculating and setting colors for pixels in each of the triangles 150 and does

not disclose or suggest overdrawing the rendered discontinuity lines of the polygon as antialiased lines. Instead, Landau's silhouette edges are merely supplemented by newly color-calculated pixels in newly created polygonal primitives located outside and adjacent to the triangle 108.

The systems and techniques disclosed and suggested in Landau fail to anticipate the recited invention. For the foregoing reasons, claim 1 is believed to be allowable over Landau. Withdrawal of the rejection is respectfully requested.

Claims 2-4 and 6-11 depend from claim 1, which is believed to be allowable. Therefore, claims 2-4 and 6-11 are believed to be allowable for at least the same reasons as claim 1. Withdrawal of the rejection of claims 2-4 and 6-11 is respectfully requested.

Claim 12 also recites "overdrawing the discontinuity edges as antialiased lines", just as claim 1 does, and claims 13 and 15-20 depend from claim 12. Therefore, claims 12-13 and 15-20 are believed to be allowable for at least the same reasons as claim 1. Withdrawal of the rejection of claims 12-13 and 15-20 is respectfully requested.

Claim 43 recites "overdrawing the silhouette edges as antialiased lines", in a manner similar to claim 1, and claims 44-47 depend from claim 43. Therefore, claims 43-47 are believed to be allowable for at least the same reasons as claim 1. Withdrawal of the rejection of claims 43-47 is respectfully requested.

Claim 53 recites "overdrawing discontinuity edges of the polygonal mesh as antialiased lines", in a manner similar to claim 1, and claims 54-62 depend from claim 53. Therefore, claims 53-62 are believed to be allowable for at least the same reasons as claim 1. Withdrawal of the rejection of claims 53-62 is respectfully requested.

Claim 63 recites "an overdrawer configured to <u>overdraw</u> the discontinuity edges as antialiased <u>lines</u>", in a manner similar to claim 1, and claims 64, 66, and 68 depend from claim 63. Therefore, claims 63-64, 66, and 68 are believed to be allowable for at least the same reasons as claim 1. Withdrawal of the rejection of claims 63-64, 66, and 68 is respectfully requested.

Claim 69 recites a graphical computing device to "overdraw the discontinuity edges as antialiased lines", in a manner similar to claim 1, and claims 71-73 depend from claim 69. Therefore, claims 69 and 71-73 are believed to be allowable for at least the same reasons as claim 1. Withdrawal of the rejection of claims 69 and 71-73 is respectfully requested.

Claim 74, as amended, recites "means for <u>overdrawing</u> the sharp edges and the silhouette edges as antialiased lines", in a manner similar to claim 1. Therefore, claim 74 are believed to be allowable for at least the same reasons as claim 1. Withdrawal of the rejection of claims 74 is respectfully requested.

Claim Rejections – 35 U.S.C. § 102

The Examiner rejects claims 1-50 and 52-74 under 35 U.S.C. 102(e) as being purportedly anticipated by U.S. Patent No. 5,742,277 to Gossett et al. ("Gossett"). The Applicant respectfully traverses this rejection.

First, it is noted that although the Examiner rejects claims 21-27 under Section 102(e) on page 10 of the Office action, the Examiner did not provide any explanation at all of a Section 102(e) rejection with regard to claims 21-27. On page 12 of the Office action, the Examiner discusses the specific Section 102 rejection of claims 15-20 and then goes on to discuss the specific Section 102 rejection of claim 28, without any discussion of the rejection of claims 21-27.

Therefore, the Applicant believes that the rejection of claims 21-27 appearing on page 10 of the Office action is a typographical error, as Gossett does not disclose or suggest the limitations set forth in claims 21-27. However, if the Examiner wishes to maintain a Section 102 rejection of claims 21-27, the Applicant requests that the Examiner provide appropriate support for the rejection of claims 21-27 as required by 37 C.F.R. 1.104(c)(2).

Second, it is noted that the Examiner refers to the Gossett reference as U.S. Patent No. 6,115,050. However, the Applicant believes that this is a typographical error, and that the Examiner intended the rejection to be in view of U.S. Patent No. 5,742,277 to Gossett. The following argument is based on this belief.

Turning now to claim 1, Gossett fails to disclose or suggest "overdrawing the silhouette edges as antialiased lines" as positively recited by the Applicant. Instead, Gossett discloses estimating a background color of the edge pixel based on foreground colors of neighboring pixels and interpolating between the foreground color and estimated background color to determine an output color of the edge pixel. *See, e.g.,* Col. 4, lines 14-32.

The Examiner cites to steps 1010-1011 in FIG. 10 as disclosing overdrawing the discontinuity edges as antialiased lines. However, step 1010 merely recites performing antialiasing of internal edges, and step 1011 merely recites performing antialiasing of external edges. There is no disclosure or suggestion that the disclosed antialiasing is by overdrawing the silhouette edges as antialiased lines.

The Examiner also cites to Col. 9, lines 14-20 and concludes that the silhouette edges 808 and 809 in FIG. 8 are antialiased corresponding with antialiased lines. However, this merely explains a method for differentiating

between external and internal edges. Again, there is no disclosure or suggestion that the antialiasing is by <u>overdrawing</u> the silhouette edges as antialiased <u>lines</u>.

For the foregoing reasons, claim 1 is believed to be allowable over Gossett. Withdrawal of the rejection is respectfully requested.

Claims 2-11 depend from claim 1, which is believed to be allowable. Therefore, claims 2-11 are believed to be allowable for at least the same reasons as claim 1. Withdrawal of the rejection of claims 2-11 is respectfully requested.

Claim 12 also recites "<u>overdrawing</u> the discontinuity edges as antialiased <u>lines</u>", just as claim 1 does, and claims 13-20 depend from claim 12. Therefore, claims 12-20 are believed to be allowable for at least the same reasons as claim 1. Withdrawal of the rejection of claims 12-20 is respectfully requested.

Claim 28 was rejected as being inherently anticipated by Gossett. "To establish inherency, the extrinsic evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities." MPEP §2112 citing *In re Robertson*, 49 U.S.P.Q.2d 1949, 1950-51 (Fed. Cir. 1999).

The Examiner relies on item 404 in FIG. 4 as <u>inherently disclosing</u> Applicant's claimed steps of "identifying sharp edges prior to runtime" and "finding silhouette edges in the polygon mesh during runtime using the data structure". Item 404 is an operational block of a computer graphics system 402 for "other graphical processing devices". There is no discussion of these other graphical processing devices, or the function of these devices, other than to provide data to the blend unit 406. There is no disclosure or suggestion that the

other graphical processing devices in Gossett are capable of identifying sharp edges prior to runtime.

The Examiner also relies on item 402 in FIG. 4 as <u>inherently disclosing</u> Applicant's claimed step of "constructing a data structure prior to rendering a polygon mesh". Item 402 is simply a high level depiction of a computer graphics system. There is no discussion of how this computer graphics system could be implemented to perform the step of "constructing a data structure prior to rendering a polygon mesh".

The Examiner further relies on item 502 in FIG. 5 as <u>inherently disclosing</u> Applicant's claimed step of "collecting the sharp edges and the silhouette edges in a list to form discontinuity edges of the polygon mesh." Item 502 is simply a frame buffer entry. There is no discussion or suggestion of how the frame buffer entry could be implemented to perform the step of "collecting the sharp edges and the silhouette edges in a list to form discontinuity edges of the polygon mesh."

Notwithstanding the admitted absence of any specific disclosure or suggestion of the recited features of claim 28 in Gossett, the Office action fails to provide any basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristics **necessarily flow from the teachings of Gossett**. If the Examiner wishes to maintain a rejection of claim 28 on the basis of inherency in Gossett, the Applicant requests that the Examiner provide appropriate rational for the rejection as required by applicable case law. *Ex parte Levy*, 17 U.S.P.Q.2d 1461, 1464 (Bd. Pat. App. & Inter. 1990). In the absence of such rationale, the Applicant requests allowance of claim 28.

The disclosure in Gossett is insufficient to support a rejection based on inherency. Furthermore, the Office action fails to provide any basis in fact and/or

etc. in support of a rejection based on inherency in view of the Gossett reference. Therefore, withdrawal of the rejection of claim 28 is respectfully requested.

Claims 29-32 depend from claim 28, which is believed to be allowable. Therefore, claims 29-32 are believed to be allowable for at least the same reasons as claim 28. Withdrawal of the rejection of claims 29-32 is respectfully requested.

Claim 33 recites computer-executable instructions that perform the method in claim 28. Therefore, claim 33 is allowable for at least the same reasons as claim 28.

Claim 34 recites "overdrawing the discontinuity edges" in a manner similar to claim 1, and claims 35-41 depend from claim 34. Therefore, claims 34-41 are believed to be allowable for at least this reason, as discussed above for claim 1. Withdrawal of the rejection of claims 35-41 is respectfully requested.

Claim 42 recites computer-executable instructions that perform the method in claim 21. Therefore, claim 42 is allowable for at least the same reasons as claim 21.

Claim 43 recites "overdrawing the silhouette edges as antialiased lines", in a manner similar to claim 1, and claims 44-47 depend from claim 43. Therefore, claims 43-47 are believed to be allowable for at least the same reasons as claim 1. Withdrawal of the rejection of claims 43-47 is respectfully requested.

Claim 48 recites "overdrawing the silhouette edges as antialiased lines", in a manner similar to claim 1, and claims 49-50 and 52 depend from claim 48. Therefore, claims 48-50 and 52 are believed to be allowable for at least the same reasons as claim 1. Withdrawal of the rejection of claims 48-50 and 52 is respectfully requested.

Claim 51 is indicated as containing allowable subject matter.

Claim 53 recites "overdrawing discontinuity edges of the polygonal mesh as antialiased lines", in a manner similar to claim 1, and claims 54-62 depend from claim 53. Therefore, claims 53-62 are believed to be allowable for at least the same reasons as claim 1. Withdrawal of the rejection of claims 53-62 is respectfully requested.

Claim 63 recites "an overdrawer configured to overdraw the discontinuity edges as antialiased lines", in a manner similar to claim 1, and claims 64-68 depend from claim 63. Therefore, claims 63-68 are believed to be allowable for at least the same reasons as claim 1. Withdrawal of the rejection of claims 63-68 is respectfully requested.

Claim 69 recites a graphical computing device to "overdraw the discontinuity edges as antialiased lines", in a manner similar to claim 1, and claims 70-73 depend from claim 69. Therefore, claims 69-73 are believed to be allowable for at least the same reasons as claim 1. Withdrawal of the rejection of claims 69-73 is respectfully requested.

Claim 74 recites "means for overdrawing the sharp edges and the silhouette edges as antialiased lines", in a manner similar to claim 1. Therefore, claim 74 is believed to be allowable for at least the same reasons as claim 1. Withdrawal of the rejection of claim 74 is respectfully requested.

Allowable Subject Matter

It has been indicated that claim 51 would be allowable if written in independent form to include all of the limitations of the base claim and any intervening claims. However, claim 51 depends from claim 48 and is believed to be allowable, as discussed above. Therefore, claim 51 is allowable, and withdrawal of the rejection is respectfully requested.

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Conclusion

The Applicant respectfully requests that a timely Notice of Allowance be issued in this matter.

Respectfully Submitted,

Dated: 12-19-03   By: _~Mark D. Trenner_

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